

Listing of Claims:

1-3. (Canceled)

4. (Currently amended) An isolated nucleic acid that comprises a nucleotide sequence comprising at least about ~~87~~⁹⁵% sequence ~~homology~~ with ~~the~~ a nucleotide sequence selected from the group consisting of SEQ ID NO: 8, SEQ ID NO: 9, SEQ ID NO: 10, SEQ ID NO: 11, SEQ ID NO: 12, SEQ ID NO: 13, and SEQ ID NO: 14 said nucleotide sequence encoding a polypeptide selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 5, SEQ ID NO: 6, and SEQ ID NO: 7, and combinations thereof; wherein said nucleotide sequence encodes a polypeptide that induces anti-leukotoxin antibodies in a mammal, when administered to said mammal.

5-8. (Canceled)

9. (Previously presented) An expression vector that comprises the isolated nucleic acid of claim 4.

10. (Canceled)

11. (Canceled)

12. (Withdrawn) A vaccine effective for conferring protective immunity against *F. necrophorum* comprising the protein expressed by a portion of SEQ ID No. 8 and a suitable pharmacologically compatible carrier.

13. (Withdrawn) The vaccine of claim 12, said vaccine being prepared by a method comprising the steps of:

a) providing the *F. necrophorum* gene which expresses leukotoxin;

- b) truncating said *F. necrophorum* gene into a plurality of discrete nucleotide sequences, each of said discrete nucleotide sequences encoding for a respective polypeptide sequence;
- c) expressing and recovering said encoded polypeptide sequence expressed by at least one of said discrete nucleotide sequences;
- d) inactivating said recovered polypeptide sequence; and
- e) combining said inactivated polypeptide sequence with said suitable pharmacologically compatible carrier to produce said vaccine.

14. (Withdrawn) The vaccine of claim 13, said discrete nucleotide sequences having a sequence having at least about 50% sequence homology with a sequence selected from the group consisting of SEQ ID Nos. 9-14.

15. (Withdrawn) The vaccine of claim 13, further comprising the step of expressing and recovering said respective polypeptides using said nucleotide.

16-29. (Canceled)

30. (New) An isolated nucleic acid encoding a truncated protein comprising the amino acid sequence of SEQ ID NO: 2.

31. (New) The isolated nucleic acid of Claim 30 comprising the nucleotide sequence of SEQ ID NO: 9.

32. (New) An expression vector that comprises the isolated nucleic acid of claim 30.

33. (New) An isolated nucleic acid encoding a truncated protein comprising the amino acid sequence of SEQ ID NO: 3.

34. (New) The isolated nucleic acid of Claim 33 comprising the nucleotide sequence of SEQ ID NO: 10.

35. (New) An expression vector that comprises the isolated nucleic acid of claim 33.

36. (New) An isolated nucleic acid encoding a truncated protein comprising the amino acid sequence of SEQ ID NO: 4.

37. (New) The isolated nucleic acid of Claim 36 comprising the nucleotide sequence of SEQ ID NO: 11.

38. (New) An expression vector that comprises the isolated nucleic acid of claim 36.

39. (New) An isolated nucleic acid encoding a truncated protein comprising the amino acid sequence of SEQ ID NO: 5.

40. (New) The isolated nucleic acid of Claim 39 comprising the nucleotide sequence of SEQ ID NO: 12.

41. (New) An expression vector that comprises the isolated nucleic acid of claim 39.

42. (New) An isolated nucleic acid encoding a truncated protein comprising the amino acid sequence of SEQ ID NO: 6.

43. (New) The isolated nucleic acid of Claim 42 comprising the nucleotide sequence of SEQ ID NO: 13.

44. (New) An expression vector that comprises the isolated nucleic acid of claim 42.

45. (New) An isolated nucleic acid comprising a nucleic acid sequence selected from the group consisting of:

- (a) a nucleotide sequence having at least 95% sequence identity with a nucleic acid selected from the group consisting of SEQ ID NO: 8, SEQ ID NO: 9,

SEQ ID NO: 10, SEQ ID NO: 11, SEQ ID NO: 12, SEQ ID NO: 13, and SEQ ID NO: 14; or

- (b) a nucleotide encoding a polypeptide selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 5, SEQ ID NO: 6, and SEQ ID NO: 7; or
- (c) (a) and (b).